Total No. of Questions—4] [Total No. of Printed Pages—3

Seat No.	

[4918]-303

T.Y. B.Sc. (Third Semester) EXAMINATION, 2016

COMPUTER SCIENCE

Paper III

CS-333 : Computer Networks—I

(2013 PATTERN)

Time : Two Hours **Maximum Marks : 40**

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Use of calculators/log tables is allowed.

1. Attempt *all* of the following questions : [10×1=10]

(*a*) What are standards ? What are the types of standards ?

(*b*) List any *two* similarities available in TCP/IP and OSI model.

(*c*) Give diagrammatic representation of bus and mesh topology.

(*d*) What is the use of crossover cables ?

(*e*) An anolog voice signal is digitized by sampling it 6000 times per second. Calculate the bit rate where digital signal contains 256 levels.

P.T.O.

(f) Draw differential Manchester encoding for bit pattern :

010110001.

(g) Apply bit stuffing on the following pattern :

01001111111101111110.

(h) Write the synonym for CSMA/CD.

(i) State any *two* uses of PPP.

(j) List any *two* channelization protocol.

2. Attempt any *two* of the following : [2×5=10]

(a) Explain Microwave transmission in brief.

(b) A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is $x^3 + 1$. Show the actual bit string transmitted.

(c) Explain any *five* goals of computer networks.

3. Attempt any *two* of the following : [2×5=10]

(a) Explain Pure ALOHA and slotted ALOHA with example.

(b) Differentiate between port address, logical address and physical address.

(c) Explain circuit switching in detail.

4. Attempt (A) *or* (B) of the following :

(A) (a) Write a note on serial transmission. [5]

(b) What is Piggybacking ? Explain the advantages of Piggybacking. [3]

(c) What are the advantages of point-to-point network ? [2]

Or

(B) (a) What is transmission impairment ? Explain the causes of transmission impairment. [5]

(b) Explain Polling "Select" function. [3]

(c) Write any *two* differences between STP and UTP. [2]

Shielded Twisted pair

Total No. of Questions—4] [Total No. of Printed Pages—3

Seat No.	

[5018]-303

T.Y. B.Sc. (Computer Science) (III Sem.) EXAMINATION, 2016

CS-333 : COMPUTER NETWORKS—1

Paper III

(2013 PATTERN)

Time : Two Hours **Maximum Marks : 40**

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) *All* questions carry equal marks.

(*iii*) Neat diagrams must be drawn wherever necessary.

1. Attempt *all* of the following : [10×1=10]

(a) Explain Mesh topology.

(b) Give responsibilities of Transport Layer.

(c) List types of Guided media.

(d) What the term signal means ? Give its types.

(e) Draw NRZ-I bit pattern for 01011110.

(f) Give disadvantages of circuit switching.

(g) Bytestuff the following data :

A ESC ESC FLAG B

(h) Give disadvantages of Optical Fibers.

(i) What is bit length ? State formula to calculate bit length.

(j) What is Baud Rate ?

P.T.O.

2. Attempt any *two* of the following : [2×5=10]

(a) Compare Star Bus and Star Ring topologies with parameter.

(b) Explain Point to Point and Broadcast Infrared System.

(c) Calculate the maximum bit rate for a channel having bandwidth 3100 Hz, if :

(i) S/N ratio 20 dB

(ii) S/N ratio 10 dB.

3. Attempt any *two* of the following : [2×5=10]

(a) Explain OSI reference model with the help of suitable diagram.

(b) Discuss RZ and NRZ method of Line Coding with proper format for given data :

10110100101.

(c) In a system data received was 1011010. Using seven bit odd parity Hamming Code determine correct code.

4. Attempt any *one* of the following (A *or* B) :

(A) (i) Write a short note on Piggybacking ? [4]

(ii) Explain concept of ALOHA with its types. [4]

(iii) Which device operates at Network Layer and Transport Layer of OSI model ? [2]

Or

(B) (*i*) (*a*) List characteristics of Line Coding. [2]

(*b*) Explain frame format of HDLC protocol with the help of suitable diagram. [2]

(*ii*) Write a short note on token passing. [4]

(*iii*) Define the following Data Communication Standards : [2]

(*a*) De Facto

(*b*) De Jure.

Total No. of Questions—4] [Total No. of Printed Pages—4

Seat No.	11172

[4818]-303

T.Y. B.Sc. (C.S.) (Third Semester) EXAMINATION, 2015

CS-333 : COMPUTER NETWORKS-I

Paper III

(2013 PATTERN)

Time : Two Hours 16 Maximum Marks : 40

N.B. :— (*i*) Neat diagrams must be drawn wherever necessary.

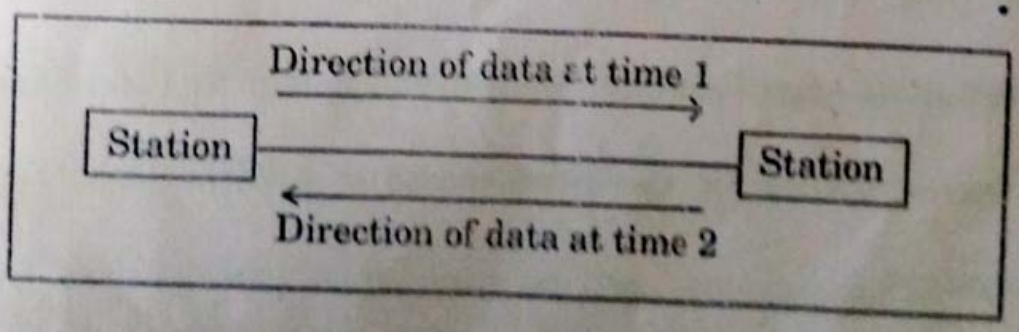
(*ii*) Figures to the right indicate full marks.

(*iii*) Use of electronic pocket calculator is allowed.

(*iv*) *All* questions are compulsory.

1. Attempt *all* of the following : [10×1=10]

(*a*) Identify the type of data flow given below :



Half d

P.T.O.

(b) State the concept of encapsulation.

(c) Calculate the transmission time for a 20 kbyte message through a network having a bandwidth of 1 Gbps.

(d) List out the applications of Infrared transmission.

(e) Find out the bit sequence for the polynomial $x^7 + x^5 + 1$ and the generator polynomial $x^3 + 1$.

(f) Why is the CSMA method called 1-persistent ?

(g) List out the protocols of transport layer in TCP/IP protocol suite.

(h) How data bit 0, data bit 1 and silence is represented in CDMA ?

(i) List different criteria of transparent bridges.

(j) State the various ways of serial transmission.

2. Attempt any *two* of the following : [2×5=10]

(a) What is data communication ? Explain the fundamental characteristics for the effectiveness of a data communications system.

(b) Discuss the various issues when bridges are used to connect different LANS.

(c) Explain multimode step-Index Fiber and multimode graded-index fiber.

3. Attempt any *two* of the following : [2×5=10]

(a) Explain the different functions performed by presentation layer of OSI Model.

(b) Differentiate between circuit switching and packet switching.

(c) Write a note on Interframe Space with diagram.

4. Attempt A or B of the following :

(A) (i) Apply Manchester and Differential Manchester line coding schemes on the following bit pattern : [4]

1001110111001

(ii) Explain Physical ring topology and Dual ring topology. [4]

(iii) Explain audio form of data representation. [2]

Or

(B) (i) Write a note on signal level in CDMA. [4]

(ii) What are the propagation time and transmission time for a 2.5 kbyte message if the bandwidth of the network is 1 Gbps ? Assume that the distance between the sender and the receiver is 10,000 km and that light travels at 2.4×10^8 m/s. [4]

(iii) State colour code scheme for T568A twisted pair cable. [2]

Total No. of Questions—4] [Total No. of Printed Pages—3

Seat No.	

[5116]-303

T.Y. B.Sc. (Sem. III) EXAMINATION, 2017

COMPUTER SCIENCE

Paper III

(CS-333 : Computer Network—I)

(2013 PATTERN)

Time : Two Hours **Maximum Marks : 40**

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) *All* questions carry equal marks.

(*iii*) Neat diagram must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

1. Attempt *all* of the following : [10×1=10]

(*a*) Define protocol with its key elements.

(*b*) Define mesh topology.

(*c*) What is port address ?

(*d*) List the applications of coaxial cable.

(*e*) What is the purpose of line testing tool ?

(*f*) Which devices operate at physical layer ?

(*g*) Define Bit rate and Baud rate.

P.T.O.

(h) Which error detection method uses one's complement arithmetic ?

(i) Define piggybacking.

(j) State *three* types of MAC protocols.

2. Attempt any *two* of the following : [2×5=10]

(a) State the difference between LAN and WAN.

(b) Explain fiber optic cable with their types and applications.

(c) Calculate the total delay for a frame of size 5 million bits which is sent on a link with 10 Routers, each having queuing time of 2 μs and a processing time of 1 μs. The length of the link is 2000 km and speed of light is 2×10^8 m/s in the link. The link has bandwidth 5 Mbps.

3. Attempt any *two* of the following : [2×5=10]

(a) What are the responsibilities of session and presentation layer ?

(b) What is parallel transmission ? State their advantages of disadvantages.

(c) Generate the CRC code for message 1001101010. Give generator polynomial $g(x) = x^4 + x^2 + 1$.

4. Attempt any *one* (A *or* B) of the following :

(A) (*i*) What is framing ? Explain any *two* framing methods with example. [4]

(*ii*) Explain FDMA in detail. [4]

(*iii*) Using diagram, write the protocol stack of TCP/IP model. [2]

Or

(B) (*i*) What are Random access methods ? Explain any *one* mechanism. [4]

(*ii*) Write notes on :

(*a*) PPP [2]

(*b*) Thermal and Induced noise. [2]

(*iii*) Explain star topology with their advantages. [2]